What is claimed is:

1. A turbine vane assembly comprising:

a turbine vane having first and second shrouds with an elongated airfoil extending between, each end of the airfoil transitioning into a shroud at a respective junction, each of the shrouds having a plurality of cooling passages, the airfoil having a plurality of cooling passages extending between the first and second shrouds; and

a substantially flat inner plate and an outer plate coupled to each of the first and second shrouds so as to form inner and outer plenums, each inner plenum defined between at least the junction and the substantially flat inner plate, the outer plenum defined between at least the substantially flat inner plate and the outer plate, wherein each inner plenum is in fluid communication with a respective outer plenum through at least one of the cooling passages in the respective shroud, whereby inner and outer plenums and coolant passages direct coolant flow throughout the vane including coolant flow within the plenums generally transverse to the elongated direction of the airfoil.

2. The assembly of claim 1 wherein each of the substantially flat inner plates is gauge plate.

3. The assembly of claim 1 wherein at least one of the outer plates is gauge plate.

4. The assembly of claim 1 wherein an outwardly-facing surface of at least one of the outer plates includes at least one integral attachment.

5. The assembly of claim 1 wherein each of the substantially flat inner plates is coupled to a respective shroud by brazing or welding.

6. The assembly of claim 1 wherein each of the outer plates is coupled to a respective shroud by structural welding.

7. The assembly of claim 1 wherein each of the first and second shrouds has inner and outer ledge portions.

8. The assembly of claim 7 wherein the inner and outer ledge portions are substantially parallel.

9. The assembly of claim 7 wherein each of the substantially flat inner plates is coupled to a respective shroud proximate to the inner ledge portion, and wherein each of the outer plates is coupled to a respective shroud proximate to the outer ledge portion.

10. The assembly of claim 1 further comprising at least one coolant supply tube for supplying coolant to a trailing edge portion of the airfoil, wherein the supply tube bypassingly extends through one pair of inner and outer plenums.

11. The assembly of claim 1 further including:

a first coolant supply duct extending between one of the outer plates and a respective substantially flat inner plate, the first duct allowing externally-supplied coolant to enter the inner plenum of one of the shrouds and at least one of the cooling passageway in the airfoil; and

a second coolant supply duct extending between the other substantially flat inner plate and the airfoil, the second duct allowing coolant entering the at least one of the cooling passageway in the airfoil from the first duct to pass into the outer plenum of the other shroud.

12. The assembly of claim 1 further including:

an exit channel extending between the airfoil and one of the substantially flat inner plates; and

one of the outer plates includes an opening, wherein the opening in the outer plate being fluidly aligned with at least a portion of the exit channel such that coolant can exit the assembly.

13. The assembly of claim 1 wherein the inner plenum of the outer shroud is in fluid communication with the inner plenum of the inner shroud through at least one of the cooling passages extending through the airfoil.

14. A method of assembling a turbine vane comprising the steps of:

providing a turbine vane including an outer shroud, an inner shroud and an airfoil extending between the inner and outer shrouds, each shroud having first and second ledge portions, the airfoil including an inner and an outer landing surface at each of its ends, each landing surface having a plurality of openings, wherein the shrouds and airfoil include a plurality of internal cooling passages;

securing a first end of a duct to the inner airfoil landing, the duct being fluidly aligned with one of the plurality of openings in the inner airfoil landing;

securing a first end of a channel to the outer airfoil landing, the channel being fluidly aligned with one of the plurality of opening in the outer airfoil landing;

securing a first end of a tube to the outer airfoil landing, the tube being fluidly aligned with one of the plurality of opening in the outer airfoil landing;

securing first and second substantially flat inner plates to the inner and outer shrouds;

securing a first substantially flat inner plate having an opening to the inner shroud substantially adjacent to the first ledge portion of the inner shroud, the first plate being positioned such that the opening is secured in fluid alignment to a second end of the duct;

securing a second substantially flat plate to the outer shroud substantially adjacent to the first ledge portion of the outer shroud, the second plate having first, second and third openings and being positioned such that the first opening is secured in fluid alignment to a second end of the channel and such that the second end of the tube extends through the third opening;

securing a third plate to the inner shroud substantially adjacent to the second ledge portion of the inner shroud; and

securing a fourth substantially flat plate to the outer shroud substantially adjacent to the second ledge portion of the outer shroud, the fourth plate including a plurality of openings wherein a second end of the channel is secured in fluid alignment to one of the plurality of openings and a second end of the tube is secured in fluid alignment to another of the plurality of openings,

whereby the vane assembly provides a series of plenums and passages to direct flow of a coolant throughout the vane assembly.

15. The method of claim 14 wherein each of the securing steps is performed by one of welding or brazing.

16. The method of claim 14 wherein the third plate and the fourth substantially flat plate are secured to a respective shroud by structural welding.

17. The method of claim 14 wherein the first ledge portion is substantially parallel to the second ledge portion.

18. The method of claim 14 wherein the first, second and fourth substantially flat plates are gauge plates.

19. The method of claim 1 wherein the third plate is substantially flat on an inwardly-facing side and includes at least one attachment on an outwardly-facing side.

20. The method of claim 1 further including the step of:

substantially sealingly closing at least one core print opening in the airfoil landing.